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29 April – 1 May 2019

SYSTEMS ENGINEERING TEST AND
EVALUATION CONFERENCE 2019



SYSTEMS SCIENCE & ENGINEERING FOR A BETTER AUSTRALIA SETE2019.COM.AU

Development of reusable requirements for use on the
Sydney Metro program

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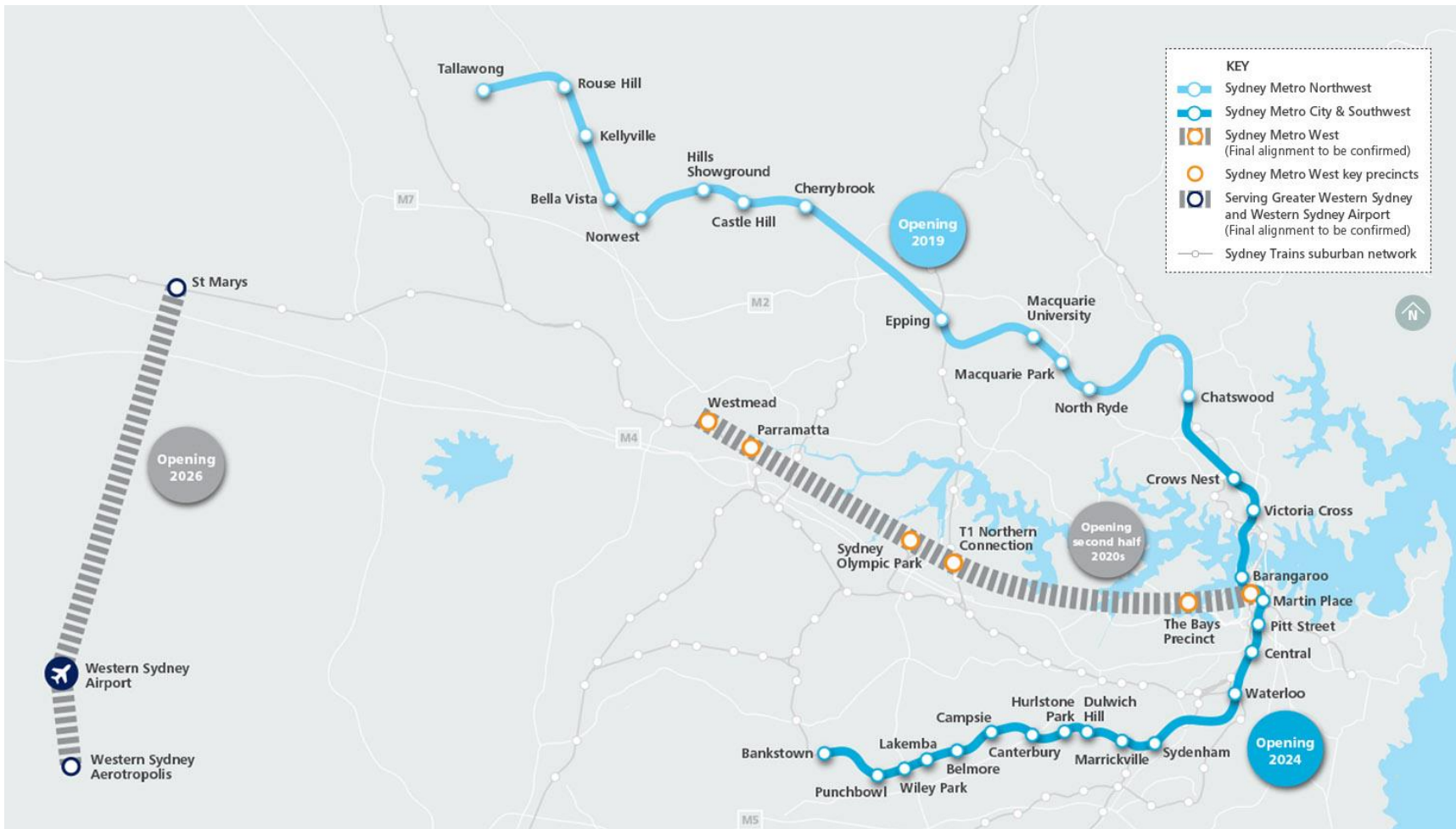
Sydney Metro is Australia's biggest public transport project





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- Sydney Metro Northwest and Sydney Metro City & Southwest
 - Separate requirements sets were developed
 - Long requirement development and approval process
- Projects in planning stages to reuse requirements set



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Organisation Corporate
Plan objectives

Sydney Metro
corporate objectives

Project objectives

Project objectives established by
senior stakeholders

Business requirements

Business and stakeholder requirements

System requirements

Requirements that the system fulfils to satisfy the
business requirements

Contract requirements

Individual contract requirements specified to meet
the system requirements



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Requirements are objects with attributes:

- Author
- Owner
- Status
 - Draft
 - Candidate
 - Agreed
 - Approved
 - Cancelled



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Business requirements reuse:

	Sydney Metro West	Sydney Metro Greater West
Common (same)	60	60
Specific (different)	1	6
Aligned (different parameters)	5	5



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Common business requirements:

- Product
- Financial sustainability
- Customer experience
- Safety and security
- Operations
- Service frequency
- Future proofing
- Operating modes
- Transport integration
- Place making and activation
- Sustainability and environment



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Specific business requirements:

- Journey time
- Easement
- Operational compatibility
- Operational impacts
- Security
- Integration



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Aligned business requirements:

- Stations
- Safeguarding
- Capacity



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Common system requirements:

- Customer experience
- Stations, interchanges and precincts
- Transport integration
- Rolling stock
- Civils and structural
- Stabling and maintenance
- Rail systems
- Safety and security
- Non-functional requirements
- Delivery



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Common systems architecture

- Acoustic performance noise and vibration
- Asset management and maintenance
- Central control system
- Condition monitoring and SCADA
- Electrical safety and EMC
- Electrical supply and distribution
- Enabling works
- Environment and sustainability
- Fire and life safety
- Hydraulics drainage and water treatment
- Invert slab



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Common systems architecture

- Mechanical and electrical systems
- Operations
- Rail safety management
- Rolling stock
- Signalling train control system
- Stabling and maintenance facility
- Station control passenger and information systems
- Stations and precincts
- Track
- Transit space
- Tunnels



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Contract requirements package:

- Conditions of contract
- Specifications & drawings
 - Particular specification (sub-system specification)
 - General specification (management requirements)
 - Design standards manual (process requirements)
 - Technical specification (aligns with particular specification)
 - Drawings



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